3 ~~23~~. (Amended) The method of claim 1 ~~22~~ or 2 ~~69~~, wherein said myocardial dysfunction is selected from the group consisting of coronary artery disease, ventricular dysfunction and differences in blood flow through disease free coronary vessels and stenotic coronary vessels.

4 ~~24~~. (Amended) The method of claim 1 ~~22~~ or 2 ~~69~~, wherein said adenosine receptor agonist is selected from the group consisting of adenosine, 1-methyl-2-phenylethyl-adenosine, 5-ethyl carboxamide-adenosine, cyclopentyl adenosine, 2-chloro adenosine, adenine, inosine, adenosine monophosphate, adenosine diphosphate and adenosine triphosphate.

6 ~~27~~. (Amended) The method of claim [26] 1 ~~22~~ wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 140 mcg/kg/minute.

7 ~~28~~. (Amended) The method of claims [25, 26, 27 or 28] 1 ~~22~~, 2 ~~69~~ or 6 ~~27~~, wherein said adenosine receptor agonist is adenosine.

5 ~~30~~. (Amended) The method of claim 1 ~~22~~ or 2 ~~69~~, wherein said technique to detect the presence and assess the severity of myocardial dysfunction is selected from the group consisting of radiopharmaceutical myocardial perfusion imaging when said myocardial dysfunction is coronary artery disease, ventricular function imaging when said myocardial dysfunction is ventricular dysfunction and a method for measuring coronary blood

flow velocity when said myocardial dysfunction is the difference in blood flow through disease free coronary vessels as opposed to stenotic coronary vessels.

17
~~38~~. (Amended) A method of detecting the presence and assessing the severity of coronary artery disease in a human comprising the steps of:

(a) administering <u>by an intravenous route</u> to said human [an amount] <u>about 20 mcg/kg/minute to about 200 mcg/kg/minute</u> of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) administering a radiopharmaceutical agent into said human; and

(c) performing radiopharmaceutical myocardial perfusion imaging on said human in order to detect the presence and assess the severity of coronary artery disease.

20
~~39~~. (Amended) The method of claim ~~38~~ 17 <u>or</u> ~~42~~ 19, wherein said adenosine receptor agonist is selected from the group consisting of adenosine, 1-methyl-2-phenylethyl-adenosine, 5-ethyl carboxamide-adenosine, cyclopentyl adenosine, 2-chloro adenosine, adenosine, inosine, adenosine monophosphate, adenosine diphosphate and adenosine triphosphate.

18
~~42~~. (Amended) The method of claim [41] ~~38~~ 17 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 140 mcg/kg/minute.

23 ~~43~~. (Amended) The method of claim [40, 41, or 42] ~~26~~ 17, ~~22~~ 19 or ~~42~~ 18, wherein said adenosine receptor agonist is adenosine.

15

~~44~~ 21. (Amended) The method of claim ~~26~~ 17 or ~~22~~ 19, wherein said radiopharmaceutical agent is selected from the group consisting of thallium-201, technetium-99m, derivatives of technetium-99m, nitrogen-13, rubidium-82 iodine-123 and oxygen-15.

~~46~~ 22. (Amended) The method of claim ~~26~~ 19 or ~~22~~ 19, wherein said radiopharmaceutical myocardial perfusion imaging is selected from the group consisting of scintigraphy, single photon emission computed tomography (SPECT), positron emission tomography (PET), nuclear magnetic resonance (NMR) imaging, perfusion contrast echocardiography, digital subtraction angiography (DSA) and ultrafast x-ray computed tomography (CINE CT).

16

~~49~~ 27. (Amended) A method of detecting the presence and assessing the severity of ventricular dysfunction caused by coronary artery disease, in a human, comprising the steps of:

(a) administering by an intravenous route to said human [an amount] about 20 mcg/kg/minute to about 200 mcg/kg/minute of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) performing a ventricular function imaging technique on said human; and

(c) determining the presence and assessing the severity of ventricular dysfunction.

17

~~50.~~ 29 (Amended) The method according to claim ~~49~~ 29 or ~~25~~ 28, wherein said adenosine receptor agonist is selected from the group consisting of adenosine, 1-methyl-2-phenylethyl-adenosine, 5-ethyl carboxamide-adenosine, cyclopentyl adenosine, 2-chloro adenosine, adenine, inosine, adenosine monophosphate, adenosine diphosphate and adenosine triphosphate.

~~53.~~ 31 (Amended) The method of claim [52] ~~49~~ 27 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 140 mcg/kg/minute.

~~54.~~ 32 (Amended) The method of claim [51, 52 or 53] ~~49, 25~~ 29, 28 or ~~53,~~ 31 wherein said adenosine receptor agonist is adenosine.

~~55.~~ 30 (Amended) The method of claim ~~49~~ 29 or ~~25~~ 28, wherein said ventricular function imaging technique is selected from the group consisting of echocardiography, contrast ventriculography and radionuclide angiography.

~~56.~~ 35 (Amended) A method of determining the difference between the coronary blood flow through disease free coronary vessels and stenotic coronary vessels in a human comprising the steps of:

(a) administering by an intravenous route to said human [an amount] about 20 mcg/kg/minute to about 200 mcg/kg/minute of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) performing a method for measuring coronary blood flow velocity on said human in order to assess the

vasodilatory capacity (reserve capacity) of disease free coronary vessels as opposed to stenotic coronary vessels.

9 ~~59.~~ 38 (Amended) The method according to claim ~~58~~ 35 or ~~78~~ 37, wherein said adenosine receptor agonist is selected from the group consisting of adenosine, 1-methyl-2-phenylethyl-adenosine, 5-ethyl carboxamide-adenosine, cyclopentyl adenosine, 2-chloro adenosine, adenine, inosine, adenosine monophosphate, adenosine diphosphate and adenosine triphosphate.

10 ~~62.~~ 36 (Amended) The method of claim [61] ~~58~~ 35 wherein said adenosine receptor agonist is administered by intravenous infusion in a dosage of about 140 mcg/kg/minute.

1 ~~65.~~ 40 (Amended) The method of claim[s] [60, 61, 62, 63, or 64] ~~58, 78~~ 35, 37 or ~~68~~ 36, wherein said adenosine receptor agonist is adenosine.

~~66.~~ 39 The method of claim ~~58~~ 35 or ~~78~~ 37, wherein said method for measuring coronary blood flow velocity is selected from the group of Doppler flow catheter, digital subtraction angiography and radiopharmaceutical imaging techniques.

Please add the following new claims:

~~69.~~ 2 A method of detecting the presence and assessing the severity of myocardial dysfunction in a human comprising the steps of:

12 (a) administering by an intracoronary route to said human about 2 mcg to about 20 mcg of an adenosine

receptor agonist sufficient to provide coronary artery dilation; and

(b) performing a technique on said human to detect the presence and assess the severity of said myocardial dysfunction.

8
~~70.~~ The method of claim ~~23~~ 3 wherein said adenosine receptor agonist is adenosine.

9
~~71.~~ The method of claim ~~24~~ 4 wherein said adenosine receptor agonist is adenosine.

19
~~72.~~ A method of detecting the presence and assessing the severity of coronary artery disease in a human comprising the steps of:

12 (a) administering by an intracoronary route to said human about 2 mcg to about 20 mcg of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) administering a radiopharmaceutical agent into said human; and

(c) performing radiopharmaceutical myocardial perfusion imaging on said human in order to detect the presence and assess the severity of coronary artery disease.

24
~~73.~~ The method of claim ~~29~~ 20 wherein said adenosine receptor agonist is adenosine.

46
~~74.~~ A method of detecting the presence and assessing the severity of coronary artery disease in a human comprising the steps of:

(a) administering to said human by intracoronary bolus injection about 2 mcg to about 20 mcg of adenosine in order to provide coronary artery dilation;

(b) administering thallium-201 to said human; and

(c) performing scintigraphy on said human in order to detect the presence and assess the severity of coronary artery disease.

28
~~75.~~ A method of detecting the presence and assessing the severity of ventricular dysfunction caused by coronary artery disease, in a human, comprising the steps of:

(a) administering by an intracoronary route to said human about 2 mcg to about 20 mcg of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) performing a ventricular function imaging technique on said human; and

(c) determining the presence and assessing the severity of ventricular dysfunction.

33 29
~~76.~~ The method of claim ~~50~~ wherein said adenosine receptor agonist is adenosine.

47
~~77.~~ A method of detecting the presence and assessing the severity of ventricular dysfunction in a human comprising the steps of:

(a) administering to said human by intracoronary bolus injection about 2 mcg to about 20 mcg of adenosine in order to provide coronary artery dilation;

(b) performing an echocardiography on said human; and

(c) determining the presence and assessing the severity of ventricular dysfunction.

37
~~78.~~ A method of determining the difference between the coronary blood flow through disease free coronary vessels and stenotic coronary vessels in a human comprising the steps of:

(a) administering by an intracoronary route to said human about 2 mcg to about 20 mcg of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) performing a method for measuring coronary blood flow velocity on said human in order to assess the vasodilatory capacity (reserve capacity) of disease free coronary vessels as opposed to stenotic coronary vessels.

41
~~79.~~ The method of claim 38 ~~77~~ wherein said adenosine receptor agonist is adenosine.

12

48
~~80.~~ A method of determining the difference between coronary blood flow through disease free coronary vessels and stenotic coronary vessels in a human comprising the steps of:

(a) administering to said human by intravenous infusion about 20 mcg/kg/minute to about 200 mcg/kg/minute of adenosine, in order to provide coronary artery dilation;

(b) measuring the difference between coronary blood flow through disease-free coronary vessels and stenotic coronary vessels in said human using a Doppler flow catheter in order to assess the vasodilatory capacity (reserve capacity) of disease-free coronary vessels as opposed to stenotic coronary vessels.

81. A method of detecting the presence and assessing the severity of myocardial dysfunction in a human comprising the steps of:

(a) administering to said human an amount of an adenosine receptor agonist sufficient to provide coronary artery dilation; and

(b) performing a technique on said human to detect the presence and assess the severity of said myocardial dysfunction.

82. A method of detecting the presence and assessing the severity of coronary artery disease in a human comprising the steps of:

(a) administering to said human an amount of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) administering a radiopharmaceutical agent into said human; and

(c) performing radiopharmaceutical myocardial perfusion imaging on said human in order to detect the presence and assess the severity of coronary artery disease.

83. A method of detecting the presence and assessing the severity of ventricular dysfunction caused by coronary artery disease, in a human, comprising the steps of:

(a) administering to said human an amount of an adenosine receptor agonist sufficient to provide coronary artery dilation;

(b) performing a ventricular function imaging technique on said human; and

(c) determining the presence and assessing the severity of ventricular dysfunction.